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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,271	10/17/2001	David P. Gurney	CM01968G	7238
22917	7590	11/28/2005	EXAMINER	
MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196			ZHENG, EVA Y	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/982,271

Applicant(s)

GURNEY ET AL.

Examiner

Eva Yi Zheng

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/26/02 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 9/14/05 have been fully considered but they are not persuasive. Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meet the claimed limitation as rejected.

Applicant's argument – Popovic failed to disclose “a composite signal sequence.....”; “directly applying a reordering function.....”; and “directly performing a transform.....”.

Examiner's response – a) Popovic's invention is directly to a correlation method in a DS-CDMA communication system. In the background description of Popovic, DS-CDMA system was described, wherein a plurality of coded information signals are transmitted and jointly received as a composite signal at a receiver (Col 1, L32-35). Orthogonal Gold sequences are a type of orthogonal sequences, where m-sequence is elements from orthogonal matrix. The receiver in a DS-CDMA system receives all the transmitted code from different channels and spread with Orthogonal Gold sequences (as shown in Fig. 1). Therefore, examiner believes Popovic meets claim limitation regards to a composite signal sequence. b) Popovic shows a flow chart of correlation method in a DS-CDMA receiver. As shown in Fig. 4 and 5, the multiplication (402 or 503) and permutation (403 or 502) steps constitute as directly generating a re-ordered composite signal sequence, since multiplication and permutation are calculation functions to produce reordering function. Fast Hadamard Transformation (404 or 504)

constitute as perform a transform directly on the re-ordered composite signal sequence.
Therefore, Popovic meets all claimed limitations.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-13, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Popovic (US 6,091,761).

a) Regarding claim 1, Popovic discloses a correlation method comprising the steps of:

receiving a composite signal sequence comprising transmissions from a plurality of source devices (Col 1, L32-35; inherent as samples SS received and stored; 401 in Fig 4; Col 6, L1-2);

generating a re-ordered composite signal sequence based upon a predetermined order by directly applying a reordering function to the received composite signal sequence (402 and 403 in Fig. 4; Col 6, L7-11 and Col 6, L34 - Col 8, L48); and

directly performing a transform on the re-ordered composite signal sequence (404 in Fig. 4; Col 6, L11-14).

b) Regarding claim 9, Popovic discloses a device comprising:

a receiver for receiving elements of a composite signal sequence comprising transmissions from a plurality of source devices (Col 1, L32-35; inherent as samples SS received and stored; 501 in Fig 5; Col 6, L1-2);

a state generator for generating a sequence of addresses to translate between a pseudonoise sequence and a Walsh sequence, the sequence of address corresponding to a reordered composite signal sequence generated by directly applying a reordering function to the received composite signal sequence (502 in Fig. 5; Col 6, L7-11 and Col 6, L34 - Col 8, L48);

a storage medium, coupled to the receiver and the state generator, for storing each element of the reordered composite signal sequence at a given address according to the sequence of addresses (inherent as 503 in Fig. 5); and

a processor, coupled to the storage medium, for directly performing a transform on at least a portion of the elements of the reordered composite signal sequence stored in a storage medium (504 in Fig. 5).

c) Regarding claims 2 and 15, Popovic discloses the transform is selected from a group consisting of: Fast Hadamard Transform (FHT), Fast Walsh Transform, and Fast Walsh-Hadamard Transform (FHT) (as shown in 404 in Fig. 4).

d) Regarding claim 3, Popovic discloses the method of claim 1 wherein the received composite signal sequence comprises at least one m-sequence (Col 6, L45-60).

e) Regarding claim 4, Popovic discloses wherein the predetermined order is based on a generator polynomial of at least one m-sequence (Col 6, L58 – Col 7, L15).

- f) Regarding claim 5, Popovic discloses the method of claim 1 wherein the received composite signal sequence comprises at least one specially augmented m-sequence (Col 6, L45-60).
- g) Regarding claim 6, Popovic discloses wherein the predetermined order is based on a generator polynomial of at least one specially augmented m-sequence (Col 6, L58 – Col 7, L15).
- h) Regarding claim 7, Popovic discloses wherein a dimension of the transform is equivalent to a number of available channels (as shown in Fig. 1; Col 4, L9-14).
- i) Regarding claim 8, Popovic discloses wherein a dimension of the transform is different than a number of available channels (as shown in Fig. 2; Col 4, L40-45).
- j) Regarding claim 10, Popovic discloses the device of claim 9, wherein the state generator comprises a linear feedback shift register (Col 6, L38-43).
- k) Regarding claim 11, Popovic discloses the device of claim 10, wherein the linear feedback shift register is a Fibonacci sequence generator (equivalent as “Galois Field”; Col 6, L38-43).
- l) Regarding claim 12, Popovic discloses the device of claim 9, wherein the state generator is a second storage medium (403 in Fig. 4).
- m) Regarding claim 13, Popovic discloses the device of claim 9 wherein the pseudonoise sequence is a specially augmented m-sequence (Col 6, L45-60).
- n) Regarding claim 17, Popovic discloses the method of claim 1, wherein the received composite sequence comprises only quasi-orthogonal sequences (inherent as m-sequence; Col 2, L1-24)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Popovic (US 6,091,761).

Regarding claim 16, Popovic discloses all the subject matters described above except for the specific teaching of an analog-to-digital converter in the receiver. However, analog-to-digital converter is a well-known and essential element in any digital communication system. Popovic discloses a spread spectrum communication system employing PN sequences. Therefore, it is obvious to one of ordinary skill in the art at the time of invention to realize and understand that there's an analog-to-digital converter implement in the DS-CDMA system by Popovic in order to convert received analog signals to digital, permuted and correlate thereafter. By doing so, decrease number of operations in despreading, reducing power consumption, and reduce size in IC implementation.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571 272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

November 8, 2005
Art Unit 2634

Eva Yi Zheng
Examiner
Art Unit 2634



**SHUWANG LIU
PRIMARY EXAMINER**